AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (currently amended): A communications method for use in a communications system including an end node and a first router, the method comprising:

operating said first router to receive a packet including a source address and an option field, said option field including a Care of Address corresponding to said <u>end</u> node; and

operating said first router to perform ingress filtering using said Care of Address as an ingress filter input, the result of said filtering being conditional on the value of the Care of Address.

Claim 2 (original): The method of claim 1, wherein said ingress filtering is not dependent on the value of the source address.

Claim 3 (currently amended): ~~The method of claim 1,~~ <u>A</u> <u>communications method for use in a communications system</u> <u>including an end node and a first router, the method</u> <u>comprising:</u>

<u>operating said first router to receive a packet</u> <u>including a source address and an option field, said option</u> <u>field including a Care of Address corresponding to said end</u> <u>node;</u>

<u>operating said first router to perform ingress</u> <u>filtering using said Care of Address as an ingress filter</u> <u>input, the result of said filtering being conditional on</u> <u>the value of the Care of Address; and</u>

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wherein said ingress filtering is conditional on both the source address and the Care of Address.

Claim 4 (original): The method of claim 3, wherein said ingress filtering includes checking to determine if said source address and said Care of Address are in a binding. table included in said first router.

Claim 5 (original): The method of claim 1, wherein said packet is a multicast packet and wherein said ingress filtering includes:

performing a reverse path forwarding check for said multicast packet.

Claim 6 (original): The method of claim 1, wherein operating to receive a packet includes:

receiving said packet on an interface; and

determining if said Care of Address includes an address preface matching an address prefix associated with said first router.

Claim 7 (original): The method of claim 1, wherein operating to receive a packet includes:

receiving said packet on an interface; and

determining if said Care of Address includes an address prefix matching an address prefix associated with said interface on said first router; and

setting a flag in said packet indicating that said Care of Address has been validated when said determining indicates that said Care of Address includes an address prefix associated with said interface on said first router.

Claim 8 (currently amended): ~~The method of claim 6,~~ A communications method for use in a communications system

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including an end node and a first router, the method comprising:

operating said first router to receive a packet including a source address and an option field, said option field including a Care of Address corresponding to said end node, said step of operating to receive a packet including:

i) receiving said packet on an interface; and

ii) determining if said Care of Address includes an address preface matching an address prefix associated with said first router;

operating said first router to perform ingress filtering using said Care of Address as an ingress filter input, the result of said filtering being conditional on the value of the Care of Address; and

wherein said ingress filtering passes packets having a source address that has a prefix which differs from any prefix associated with said interface on said router when said Care of Address includes a prefix which matches an address prefix associated with said interface on said first router.

Claim 9 (original): The method of claim 1, further comprising:

operating an additional router to receive the packet from the first router; and

wherein said packet includes an indicator indicating whether said additional router should exclude information from the option field including said Care of Address when performing ingress filtering.

Claim 10 (currently amended): ~~The method of claim 9,~~ A communications method for use in a communications system including an end node and a first router, the method comprising:

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operating said first router to receive a packet
including a source address and an option field, said option
field including a Care of Address corresponding to said
node;

operating said first router to perform ingress
filtering using said Care of Address as an ingress filter
input, the result of said filtering being conditional on
the value of the Care of Address;

operating an additional router to receive the packet
from the first router, said packet including an indicator
indicating whether said additional router should exclude
information from the option field including said Care of
Address when performing ingress filtering; and

wherein said first router is an access router, the
method further comprising:

operating said first router to ignore said indicator
when determining what information to use when performing
ingress filtering.

Claim 11 (currently amended): ~~The method of claim 1,~~ A
communications method for use in a communications system
including an end node and a first router, the method
comprising:

operating said first router to receive a packet
including a source address and an option field, said option
field including a Care of Address corresponding to said
node;

operating said first router to perform ingress
filtering using said Care of Address as an ingress filter
input, the result of said filtering being conditional on
the value of the Care of Address;

wherein said communication system further includes a
mobile IP home agent, the method further comprising:

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operating said mobile IP home agent to receive said packet;

operating said mobile IP home agent to determine if the Care of Address in the option field of the received packet includes a Care of Address which matches a Care of Address, corresponding to said end node, that is registered with said mobile IP home agent; and

operating said mobile IP home agent to drop said received packet when it is determined that the Care of Address in the option field of the received packet includes a Care of Address which does not match a registered Care of Address corresponding to said end node.

Claim 12 (currently amended): The method of claim 10, wherein said communications system further includes a mobile IP home agent, the method further comprising:

operating said mobile IP home agent, prior to performing determining and said dropping steps, to check said option field for an indicator indicating that said determining and said dropping steps should not be performed.

Claim 13 (currently amended): An apparatus comprising:

a machine readable medium, said machine readable medium including:

an Internet Protocol packet from a source node coupled to a first access router used to route messages from said source node, said access router being a single Internet Protocol hop from said source node, said first access router having a first address prefix of length L bits, where L is a positive integer greater than 0, said message including:

i) a source address field including a source address;

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ii) a destination address field including a
destination address, said destination
address corresponding to one of another node
and a group of nodes to which said packet is
being directed; and

iii) an option field, said option field
including an additional address having a
second address prefix that includes the L
bit prefix of said first access router as
the first L bits of said second address
prefix; and

a transmission module for transmitting said
packet.

Claim 14 (original): The apparatus of claim 13, wherein
said source address field includes a first M bits where M
is a positive integer greater than 0, said M bits being the
same as an M bit prefix of a second router which serves as
a mobile IP home agent for said source node.

Claim 15 (original): The apparatus of claim 14, wherein
said first access router to which said first address prefix
corresponds serves as a mobile IP attendant node.

Claim 16 (original): The apparatus of claim 13, wherein
said additional address in said option field is a mobile IP
Care of Address.

Claim 17 (original): The apparatus of claim 13, wherein
said first access router operates as a mobile IP home agent
for said source node.

Claim 18 (original): The apparatus of claim 13, wherein
said source address is an address used by said source node

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when coupled to a mobile IP Home Agent node without any intervening routing hops.

Claim 19 (original): The apparatus of claim 13, wherein said option field further includes:

an indicator that indicates whether the additional address included in said option field is associated with one of said source and destination address included in said message.

Claim 20 (original): The apparatus of claim 13, further including in said option field:

an indicator that indicates whether ingress filtering performed by a router receiving said message should be undertaken on the additional address included in said option field instead of said source address.

Claim 21 (original): The apparatus of claim 13, further comprising in said option field:

an indicator that indicates whether the additional address included in said option field includes only the L bit prefix of said first access router.

Claim 22 (original): The apparatus of claim 13, further comprising in said option field:

an indicator that indicates that the additional address in the option field will be verified as the true location of said source node by a mobile IP Home Agent node associated with said source node.

Claim 23 (original): The apparatus of claim 13, wherein said option field further includes an indicator indicating that said source node is starting a hand off from the access node to which said additional address corresponds.

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Claim 24 (original): The apparatus of claim 13, wherein said apparatus is a router and wherein said machine readable medium is a memory used for storing received IP packets, said option field further including:

a first indicator that indicates whether ingress filtering performed by a router receiving said message should be undertaken on the additional address included in said option field instead of said source address;

a second indicator that indicates whether the additional address included in said option field includes only the L bit prefix of said first access router;

an indicator that indicates that the additional address in the option field will be verified as the true location of said source node by a mobile IP Home Agent node associated with said source node; and

wherein said router includes means for processing said IP packet according to at least one of said indicators included in said option field.

Claim 25 (original): The apparatus of claim 13, wherein said apparatus is a mobile node and wherein said machine readable medium is a memory used for storing IP packets generated by said mobile node.

Claim 26 (original): The apparatus of claim 25, wherein said option field further includes:

a first indicator that indicates whether ingress filtering performed by a router receiving said message should be undertaken on the additional address included in said option field instead of said source address;

a second indicator that indicates whether the additional address included in said option field includes only the L bit prefix of said first access router; and

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an indicator that indicates that the additional
address in the option field will be verified as the true
location of said source node by a mobile IP Home Agent node
associated with said source node.

Claim 27 (original): A communications method for use in a
communications system including a mobile node and a first
router, the method comprising:

operating said first router to receive a packet
including a source address and an option field, said option
field including an option type code indicating which nodes
receiving said packet should process the contents of said
option field in a filtering operation; and

operating said first router to use contents of the
option field in a filtering operation regardless of the
value of the option type code.

Claim 28 (currently amended): ~~The communications method of~~
~~claim 27,~~ A communications method for use in a
communications system including a mobile node and a first
router, the method comprising:

operating said first router to receive a packet
including a source address and an option field, said option
field including an option type code indicating which nodes
receiving said packet should process the contents of said
option field in a filtering operation;

operating said first router to use contents of the
option field in a filtering operation regardless of the
value of the option type code;

wherein said first router is a firewall which is not
the destination of said received packet;

wherein said option type code is of a type which
indicates that said first router should not process the
information included in said option field; and

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wherein operating said first router to use contents of the option field includes operating the router to use an address in said option field in a filtering operation.

Claim 29 (currently amended): A mobile node including:

~~means~~ <u>a packet generator module</u> for generating a packet to be communicated from said mobile node to a first access router used to route messages from said mobile node to a destination node, said first access router having a first address prefix of length L bits, where L is a positive integer greater than 0, said message including:

    i) a source address field including a source address corresponding to said mobile node;

    ii) a destination address field including a destination address, said destination address corresponding to said destination node to which said packet is being directed; and

    iii) an option field, said option field including an additional address having a second address prefix that includes the L bit prefix of said first access router as the first L bits of said second address prefix; and

a transmitter for transmitting said generated packet to said first access router.

Claim 30 (original): The mobile node of claim 29, wherein said source address field includes a first M bits where M is a positive integer greater than 0, said M bits being the same as an M bit prefix of a second router which serves as a mobile IP home agent for said source node.

Claim 31 (original): The mobile node of claim 29, further comprising:

memory for storing said packet prior to transmission;

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wherein said source address is a Home Address; and

wherein said additional address is a Care of Address.

Claim 32 (original): The mobile node of claim 31, wherein said message further includes:

a first indicator that indicates whether ingress filtering performed by a router receiving said message should be undertaken on the additional address included in said option field instead of said source address.

Claim 33 (original): The mobile node of claim 32, wherein said message further includes:

a second indicator that indicates whether the additional address included in said option field includes only the L bit prefix of said first access router.

Claim 34 (original): The mobile node of claim 33, wherein said message further includes:

an indicator that indicates that the additional address in the option field is to be verified as the true location of said source node by a mobile IP Home Agent node associated with said source node.

Claim 35 (new) The method of claim 1,

wherein said end node is a mobile node; and

wherein operating said first router to perform ingress filtering includes performing said ingress filtering on said received packet.

Claim 36 (new) The apparatus of claim 13,

wherein said source address is a Home Address; and

wherein said additional address is a Care of Address.

Claim 37 (new): A mobile node including:

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means for generating a packet to be communicated from
said mobile node to a first access router used to route
messages from said mobile node to a destination node, said
first access router having a first address prefix of length
L bits, where L is a positive integer greater than 0, said
message including:

  i) a source address field including a source
  address corresponding to said mobile node;
  ii) a destination address field including a
  destination address, said destination address
  corresponding to said destination node to which
  said packet is being directed; and
  iii) an option field, said option field including
  an additional address having a second address
  prefix that includes the L bit prefix of said
  first access router as the first L bits of said
  second address prefix; and
means for transmitting said generated packet to said
first access router.

Claim 38 (new): The mobile node of claim 37, wherein said
source address field includes a first M bits where M is a
positive integer greater than 0, said M bits being the same
as an M bit prefix of a second router which serves as a
mobile IP home agent for said source node.

Claim 39 (new): The mobile node of claim 37, further
comprising:
 means for storing said packet prior to transmission;
 wherein said source address is a Home Address; and
 wherein said additional address is a Care of Address.

Claim 40 (new): An access router for use in a
communications system including an end node and said access
router, said access router comprising:

    means for receiving a packet including a source
address and an option field, said option field including a
Care of Address corresponding to said end node; and

    means for performing ingress filtering using said Care
of Address as an ingress filter input, the result of said
filtering being conditional on the value of the Care of
Address.

Claim 41 (new): The access router of claim 40, wherein
said ingress filtering is not dependent on the value of the
source address.

Claim 42 (new): An access router for use in a
communications system including an end node and said access
router, said access router comprising:

    means for receiving a packet including a source
address and an option field, said option field including a
Care of Address corresponding to said end node;

      means for performing ingress filtering using said
Care of Address as an ingress filter input; and

    wherein the result of said ingress filtering is
conditional on both the source address and the Care of
Address.

Claim 43 (new): The access router of claim 42, wherein
said means for performing ingress filtering includes means
for checking to determine if said source address and said
Care of Address are in a binding table included in said
first router.

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Claim 44 (new):　The access router of claim 43, wherein said packet is a multicast packet and wherein said ingress filtering includes:

　　　performing a reverse path forwarding check for said multicast packet.

Claim 45 (new):　A computer readable medium embodying machine executable instructions for controlling an access router to implement a communications method in a communications system including an end node, the method comprising:

　　　receiving a packet including a source address and an option field, said option field including a Care of Address corresponding to said end node;

　　　performing ingress filtering using said Care of Address as an ingress filter input; and

　　　wherein the result of said ingress filtering is conditional on both the source address and the Care of Address.

Claim 46 (new):　The computer readable medium of claim 45, wherein performing ingress filtering includes checking to determine if said source address and said Care of Address are in a binding table included in said first router.

Claim 47 (new):　The computer readable medium of claim 46, wherein said packet is a multicast packet and wherein said ingress filtering includes:

　　　performing a reverse path forwarding check for said multicast packet.

Claim 48 (new):　An access router for use in a communications system including an end node and said access router, said access router comprising:

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a receiver module for receiving a packet including a source address and an option field, said option field including a Care of Address corresponding to said end node; and

a filter module for performing ingress filtering using said Care of Address as an ingress filter input, the result of said filtering being conditional on the value of the Care of Address.

Claim 49 (new): The access router of claim 48, wherein said ingress filtering is not dependent on the value of the source address.

Claim 50 (new): An access router for use in a communications system including an end node and said access router, said access router comprising:

a receiver module for receiving a packet including a source address and an option field, said option field including a Care of Address corresponding to said end node;

a filter module for performing ingress filtering using said Care of Address as an ingress filter input; and

wherein the result of said ingress filtering is conditional on both the source address and the Care of Address.

Claim 51 (new): The access router of claim 50, wherein said ingress filer checks to determine if said source address and said Care of Address are in a binding table included in said first router.

Claim 52 (new): A device including a processor configured to control an access router in a communications system including said access router and an end node to implement a

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communications method for use in a communications system, the method comprising:

receiving a packet including a source address and an option field, said option field including a Care of Address corresponding to said end node; and

performing ingress filtering on said received packet using said Care of Address as an ingress filter input, the result of said filtering being conditional on the value of the Care of Address.

Claim 53 (new): The device of claim 52, wherein said ingress filtering is not dependent on the value of the source address.

Claim 54 (new): A device including a processor configured to control an access router in a communications system including said access router and an end node to implement a communications method for use in a communications system, the method comprising:

receiving a packet including a source address and an option field, said option field including a Care of Address corresponding to said end node;

performing ingress filtering on said received packet using said Care of Address as an ingress filter input; and

wherein the result of said ingress filtering is conditional on both the source address and the Care of Address.

Claim 55 (new): The device of claim 54, wherein said ingress filtering includes checking to determine if said source address and said Care of Address are in a binding table included in said first router.

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